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Title : FORAGING ECOLOGY OF HUMPBACK WHALES (Megaptera novaeangliae) NEAR KODIAK, ALASKA

Category : Ecology

Student : Not Applicable

Preferred Format : Either Oral or Poster Presentation

Abstract : Feeding humpback whales (Megaptera novaeangliae) are significant marine predators, but are highly dependent on the amount and type of prey they consume. To examine one possible scenario of predation by humpback whales, consumption and biomass of prey removed were modeled using three methods (I through III) for a feeding aggregation of humpback whales in an eastern Kodiak Island, Alaska study area. Methods I and II estimated biomass removal based on a percentage of average humpback whale mass. Method III estimated removal using the energy requirements of humpback whales and the energy density of their prey. Energy densities of prey were calculated from the proximate composition of prey species sampled during fish surveys conducted within the study area. A current rate of biomass removal was modeled based on current estimates of humpback abundance (population size in 2002). A historical rate of removal based on a pre-whaling population estimate (population size prior to 1926) within the study area was also modeled. Two hypothetical humpback whale diets were created in order to model consumption. The first diet (diet A) was based on the stomach contents of whales that were commercially harvested out of the Port Hobron whaling station in Kodiak, Alaska between 1926 and 1937. The remaining diet (diet B) was created from fish surveys conducted within the study area. Diet A was used to model consumption for the historical population and diet B for the current population. Finally, diet B was also used to project consumption if the current population grew to reach the historical population size. Currently, feeding humpback whales may be removing nearly 9,600 tons of prey annually, including 3,500 tons of juvenile pollock (Theragra chalcogramma) and 2,800 tons of capelin (Mallotus villosus). Historical populations may have removed over 19,000 tons of prey annually.